

Laboratory Dust Collection System For Sample Preparation And Material Testing

Item Number: KT-CC



Introduction

Optimize laboratory air quality with our high-efficiency laboratory dust collection system delivering 99% filtration efficiency down to 0.5 microns, automated pulse-jet cleaning, intelligent PLC controls, and ultra-low noise operation tailored for sample preparation, crushing, screening, and material handling processes.

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Application	Description	Key Benefit
Coal & Mineral Sample Crushing	Captures high-volume particulate emissions generated by jaw crushers, hammer mills, and pulverized sample grinding units.	Prevents sample cross-contamination while ensuring high analytical repeatability and operator respiratory safety.
Screening & Mechanical Sieving	Provides high-velocity lateral and overhead negative pressure extraction above vibratory sieve shakers and rotary screening machines.	Contains ultrafine respirable dust without altering the particle size distribution of the retained sample fraction.
Material Conveying & Transfer Chutes	Connects dedicated collection ductwork directly to internal belt transfer points, drop boxes, and enclosed coal chutes.	Prevents dust blowouts caused by material displacement, maintaining facility cleanliness and clean floor surfaces.
Metallurgical & Geological Sample Prep	Intercepts abrasive mineral dust, slag fragments, and refractory particulates during cutting, pulverizing, and fine-splitting procedures.	Extends the operational lifespan of sensitive analytical balances, optical spectrometers, and mechanical components.
Cement & Ceramic Clinker Grinding	Manages dense, fine mineral dust plumes during continuous laboratory ball milling and automated ring pulverizing cycles.	Retains fine 0.5 µm dust through Toray PTFE membrane cartridges, preventing airborne drift into adjacent wet-chemistry laboratories.
Bulk Powder Bagging & Weighing	Neutralizes dust clouds generated during manual scoop-weighing, bulk powder packaging, and sample batching operations.	Delivers a face capture velocity of 6 m/s to safeguard laboratory technicians from inhaling hazardous or irritant compounds.

Technical Parameter	Specification Value (Model: KT-CC)
Main Airflow Capacity	4800-6400 m³/h
Total Filtration Area	80 m²
Filter Cartridge Media	Toray Substrate PTFE Membrane
Dust Filtration Efficiency	≥99% (Captures particulates down to 0.5 µm)
Operating System Resistance	1500-2200 Pa
Primary Stage Filtration	Coarse Dust Processing Module
Secondary Stage Filtration	Centralized Cartridge Filtration Assembly
Cleaning Mechanism	Automated Compressed Air Reverse Pulse-Jet
Pulse Compressed Air Supply	0.4-0.6 MPa
Clean Air Dust Emission Concentration	≤50 mg/m³
Operating Noise Level	≤75 dB(A)
System Air Leakage Rate	≤5%

Technical Parameter	Specification Value (Model: KT-CC)
Dust Collector Main Inlet Air Velocity	15 m/s
Internal Dust Source Capture Inlet Velocity	4 m/s
External Dust Source Hood Air Velocity	6 m/s
Operating Process Gas Temperature	Ambient Room Temperature
Electric Power Supply	380 V, 50 Hz (Three-Phase)
Rated Motor Power	7.5 kW
Main Unit Weight	300-500 kg
Main Unit Dimensions (L × W × H)	1100 × 1000 × 2100 mm
Control Architecture	PLC Intelligent Automated Control System